Early-stage diagnosis of pancreatic cancer offers opportunity to improve patient survival

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Introduction
Pancreatic ductal adenocarcinoma (PDAC) shows a very poor survival rate with only 6% five year survival. By resecting tumors when they are still confined to the pancreas, the overall five year PDAC patient survival rate could reach 50-60%. In an effort to achieve reliable early detection we have developed IMMray™ PanCan-d, a microarray-based blood test for diagnosis of PDAC patients.

Objective
The purpose of the IMMray™ PanCan-d microarray-based test is to detect serum biomarkers associated with PDAC.

Conclusions
• PDAC stage I and II patients were detected with 96% accuracy and validated with a distinct patient cohort
• PDAC stage I to IV patients were detected with 98% accuracy and validated with a distinct patient cohort
• Six studies covering 2482 samples demonstrated robustness and high accuracy of the IMMray™ PanCan-d platform

Methods
Antibody micorarray slides are printed and incubated with patient serum. Bound antigens are detected by fluorescence, the slides are scanned and the resulting microarray images are analyzed by state-of-the-art bioinformatics tools.
Results
In a retrospective study on a South Scandinavian cohort, 1355 blood samples were analyzed.

Detection PDAC stage I-IV
PDAC stage I-IV was detected with 98% accuracy.

Detection PDAC stage I and II
148 patients in PDAC stage I and II were differentiated from 888 healthy controls with 96% accuracy.

Studies performed on the IMMray™ PanCan-d platform
Analyses of PDAC in several retrospective studies proved that the test could classify the samples consistently and with an accuracy ≥ 95%.

<table>
<thead>
<tr>
<th>STUDY</th>
<th>NO. OF SUBJECTS</th>
<th>AUC*</th>
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<tbody>
<tr>
<td>Ingvarsson et al. 2008</td>
<td>44</td>
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<td>Wingren et al. 2012</td>
<td>103</td>
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<td>Gerdtsson et al. 2015</td>
<td>338</td>
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<tr>
<td>Gerdtsson et al.</td>
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<td>0.96</td>
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<td>South Scandinavian Study</td>
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<tr>
<td>North American Validation Study</td>
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<tr>
<td>Total No. of Subjects</td>
<td>2482</td>
<td></td>
</tr>
</tbody>
</table>

*Healthy controls vs. PDAC patients

References
4. Gerdtsson et al. (Submitted 2016)
5. Manuscript in preparation
6. In collaboration with OHSU Knight Cancer Institute and the Brenden-Colson Center for Pancreatic Care